

At-Sea Hake Observer Program

Sampling Manual & Information

**NOAA Fisheries
Northwest Fisheries Science Center
Fishery Resource Analysis & Monitoring Division
Seattle, WA 98112**

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TABLE OF CONTENTS

OVERVIEW

Safety	3
Observer Regulations & Coverage	3
Hake Fishery Background & Information	4
Figure 1 MUAA	4
Bycatch Caps and Coordinating with Vessel Crew	5
Figure 2 NOAA Organization chart	7
Fishing Regulations	8

SAMPLING & BIOLOGICAL DATA

Observer Priorities & Goals	9
Observer Catch Reporting	9
OTC Estimates	9
Scale Testing	10
Random Sample Table Use	11
Composition Sampling	11
Steps in Designing a Random Sample Frame	12
Prohibited Species	12
Recording Prohibited Species	13
Salmon	13
Completing salmon snout form	16
Figure 3 Snout form	16
Atlantic Salmon Watch Program	17
Species ID Forms	17
Length & Otolith Sampling	18
Figure 4 Rockfish gonad appearance	19
Fish Collection	19
Mid-Season Data Checks & Debriefing	19
Gear Check-in protocols	20
Photo Credits	20

APPENDICES

Appendices Table of Contents	21
Appendix A. Seattle Maps showing the NWFSC and AFSC	22
Appendix B. Abbreviations	23
Appendix C. Observer Program Contact Information	24
Appendix D. Contractor Information	25
Appendix E. Useful Websites	26

OVERVIEW

NOTE: This manual is a supplement to the North Pacific Groundfish Observer Manual, which contains much more detail, particularly about safety. Please review Chapter 17 in the NPGOP manual for an in-depth safety review.

Safety



Safety must be every observer's top priority. When you board your vessel, both observers need to physically locate each piece of equipment on the vessel safety checklist, fill out the checklist and sign the form. This is mandatory. Observers who fail to fill out the vessel safety checklist will receive automatic zeros as evaluation scores, because they have failed to recognize safety as their number one priority. As an observer, you must take responsibility for your own safety and do everything in your power to be aware of and avoid known dangerous situations.

Observer Regulations & Coverage

Regulations making observer coverage *mandatory* in the federally managed at-sea hake fishery were finally put in place in 2004. In previous years all vessels voluntarily carried observers. This year coverage will be the same as in the past and all vessels will carry two observers for 100% of their fishing days. This includes both catcher/processors and motherships greater than 125 feet LOA.

The catcher/processor fleet has entered into a cooperative agreement (co-op). The co-op splits the quota into individual fishing quotas. Motherships, however, still engage in an open access style fishery.

Hake Fishery Background & Information

While the vessels and sampling situations will be familiar to most Alaska Groundfish Observers, the regulations, management, and species encountered in the hake fishery are different from those in Alaska.



The at-sea Pacific hake (*Merluccius productus*) fishery dates back to 1966 when foreign fishing vessels participated. This evolved into a joint venture with U.S. catcher vessels delivering the catch to foreign processing vessels in the 1980s. By 1991 the hake fishery was completely domesticated allowing only U.S. vessels to fish and/or process.

There are three sectors in the at-sea hake fishery:

1. Open access (motherships)
2. Co-op (catcher/processors)
3. Tribal

The at-sea hake tribal fishery is exclusive to the Makah tribe from Neah Bay, Washington. Each year the Makah are granted around 15% of the OY which is 35,000 mt in 2006. All hake fishing for the tribe takes place in the Makah Usual and Accustomed Area (MUAA) located in Washington waters near Neah Bay. Figure 1 shows the boundaries for the MUAA.

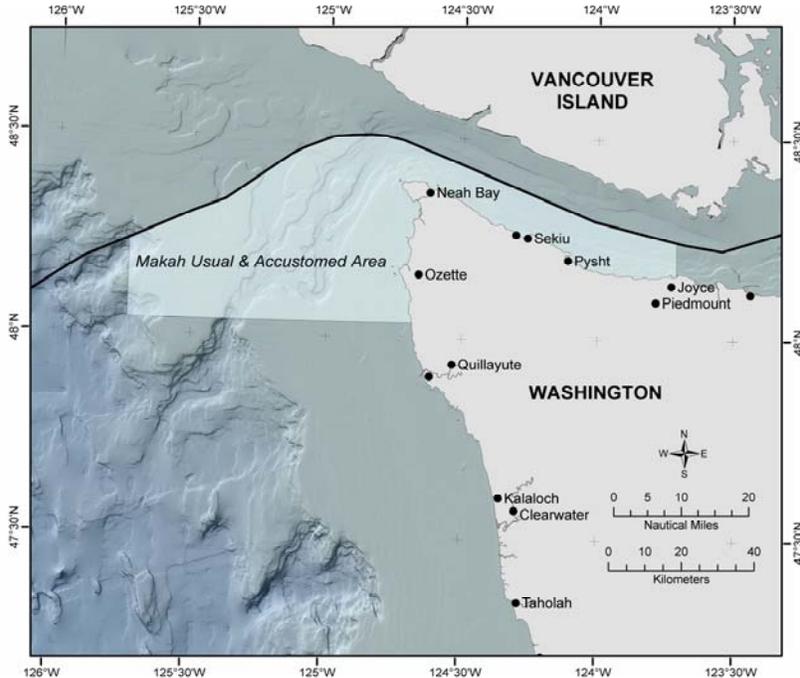


Figure 1 Makah Usual & Accustomed Area

The catcher vessel only shore-side hake fishery is considered separate from the at-sea fishery. This is the second year that each shore-side catcher vessel will carry video monitoring gear to ensure that the vessels are retaining 100% of the catch.

The at-sea hake fishery is managed almost exclusively from observer data. For these reasons observer data must be of the highest quality. The data is used in real time, i.e. the official total catch that observers send in on a daily basis is used to track how much is left of the quota. OTCs need to be double checked for accuracy before being transmitted to ensure they are correct. You

must not send bogus OTCs. If you enter 999.99 it goes into the calculations! Wait to send your data until you have the correct OTCs for all the hauls for which you have entered data.

The *F/V Arctic Fjord* is a typical vessel in the at-sea hake fishery.



Bycatch caps and coordinating with vessel crew

Due to declines in populations of some species of rockfish along the West Coast, the at-sea hake fishery has been held to lower and lower bycatch quotas. Canary rockfish is one of the species which has a very low bycatch cap of less than 5 metric tons for 2006. In 2004 the at-sea hake fishery came close to catching the canary allocation in one haul. Starting in 2005 the bycatch caps (for canary and widow) are known as “hard caps” meaning that when the allocation of one species is caught the entire at-sea fishery will close for all three sectors, and the shore-side fishery will close as well. As a result, the vessels have expressed interest in working with the observers to maximize sample size by avoiding basket sampling for any red rockfish and salmonid species.

On April 7, 2005 the observer program attended a meeting with industry representatives in order to discuss possible means of avoiding basket sampling. At this meeting several strategies were agreed upon.

- First, is the concept of a **pre-cruise meeting at the vessel**, which would include the observers, someone from the observer program, and key vessel personnel such as the Captain, factory manager, and bin operators. This meeting would allow for discussion of sampling techniques and challenges specific to the vessel. The focus would be on the vessel agreeing to cooperate with the observer to potentially slow down the sorting belt in the case of high bycatch of a sensitive species. Ideally, this would allow the observer to at least conduct multiple small partial haul samples instead of a basket sample. Historically, vessels have not been willing to slow down the belts for observers, but the potential to close the fishery is driving changes in the other direction. As the observer you need to keep in mind that collecting the largest sample possible is of high priority, but it can only be done if every single piece of bycatch can be accounted for. In the end, if you still find it impossible to partial haul, then you will have to drop down to a basket sample. In this case, you will need to explain to the Captain and/or Factory Manager what it is that is preventing a larger sample from being collected and if possible work with them to prevent

it from happening again. Please contact the Observer Program if there are problems or confusion over this.

- Second, the vessels have suggested that they would be willing to designate **someone from the crew to assist the observer** on hauls that have high bycatch. What this really means is there will be another pair of hands to help sort, lift and carry. Full supervision would be necessary at all times. This means that you cannot leave this person unattended at the belt to sort while you do lengths or weigh bycatch. All of the vessels agreed that this person would have to be completely available to help during a particular haul (i.e. would not have other responsibilities) and would need to speak and understand English so that communication wouldn't be a struggle. This assistant would only be available during high bycatch hauls when you would otherwise be forced to basket sample.
- Third, if it happens that there is a haul with a lot of non-sensitive bycatch, such as mackerel or squid, and **you do have to basket sample, then you should whole or partial haul for prohibits and rockfish** if you can. This would include, specifically, any rockfish species that you are required to take otoliths from (see pg. 18). You would not have to do this for species such as splitnose, shortbellies, or thornyheads since those species don't fall into the "species of concern" category. If a haul has multiple species of red rockfish this option might not work since it could prove too difficult to differentiate similar looking species quickly enough when sorting at the belt. As always, use your best judgment to determine the most accurate method for sampling each haul.



Offloading mid-season in Seattle.

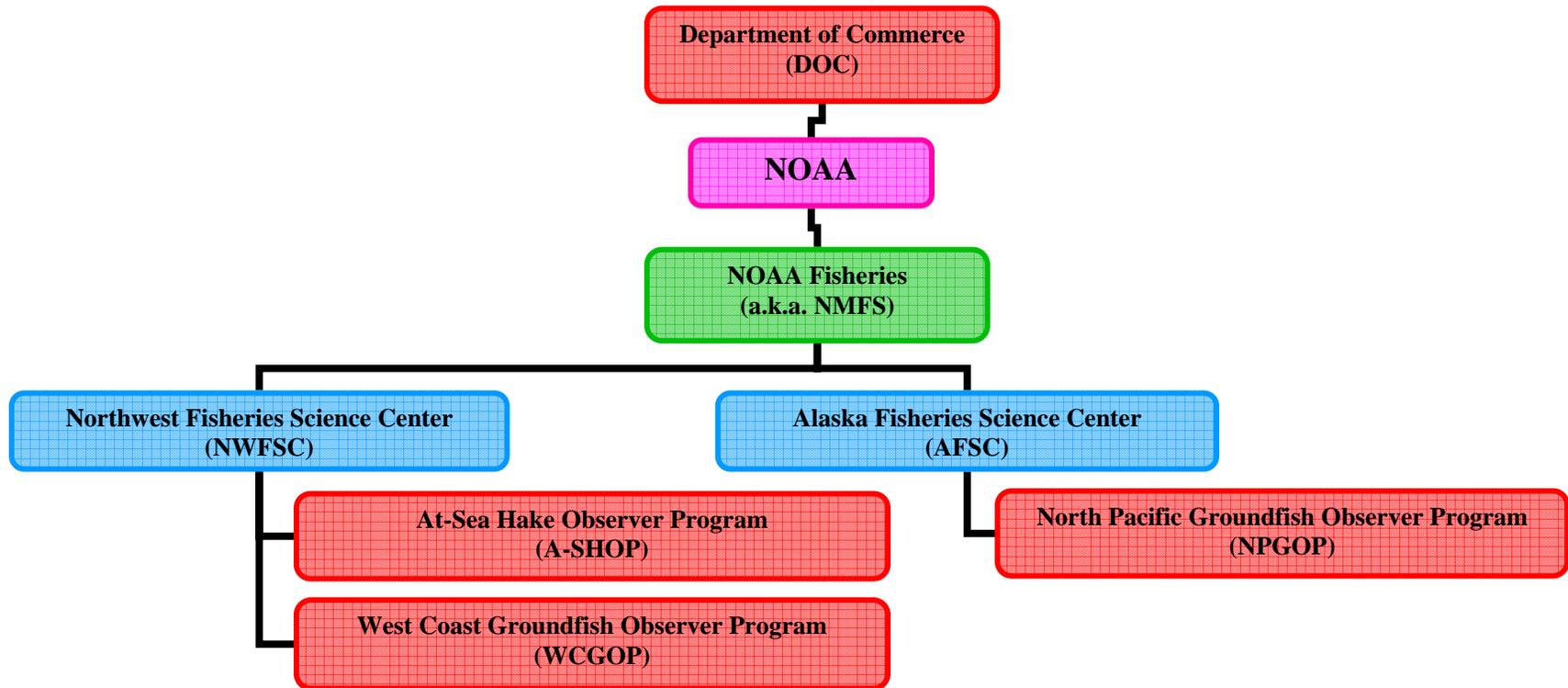
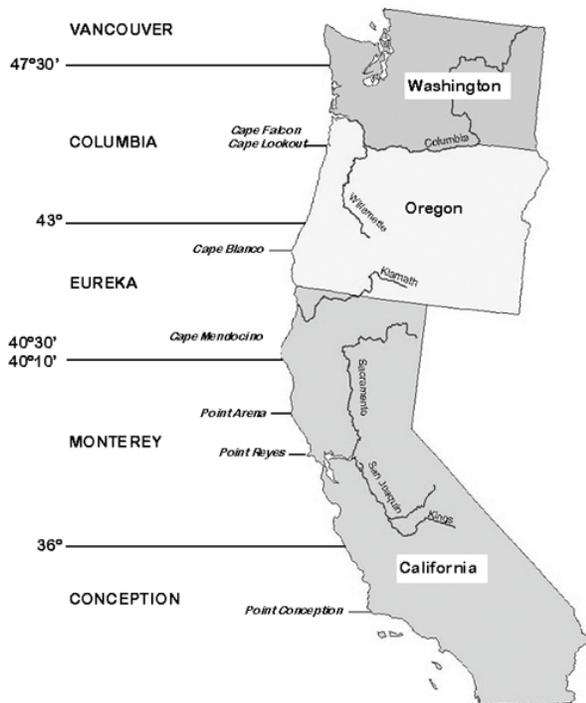


Figure 2 NOAA Organization chart

This chart shows the organization of the various observer programs based in Seattle. The Northwest Fisheries Science Center (NWFS) is located at 2725 Montlake Blvd. E (at the south end of the Montlake bridge, near the southern part of the UW campus), and the Alaska Fisheries Science Center is located in Building 4 at the Sand Point NOAA facility.

Fishing Regulations

Vessel record-keeping and reporting in the WOC is voluntary and is different than in Alaska. Vessel logbooks are not required by regulation, but in the past, all vessels have maintained WOC logbooks while participating in the hake fishery. The logbooks are similar to the Alaska ones which you are familiar with, except there are no goldenrod copies for the observer to take. Remember to double check for transcription errors between the vessel logbook, VHF and ATLAS.



The fishing regulations for the WOC are different than those regulating Alaska fisheries. Two you should be aware of:

No fishing zone

- No at-sea processing zone south of 42.00°N (near the CA-OR border)

Bycatch utilization

“To increase the utilization of bycatch that is otherwise discarded as a result of trip limits, Amendment 13 to the Groundfish Fishery Management Plan implements an increased utilization program on June 1, 2001, which allows catcher/processors and motherships in the hake fishery to exceed Groundfish trip limits without penalty, providing specific conditions are met.”

There are seven specific conditions for this. In short, these conditions are: vessel must be carrying more than one NMFS-approved observer, no prohibited species may be retained, and any bycatch which exceeds the trip limit for the vessel must be either turned into a no-value product or donated to a hunger relief organization.

This is a rather confusing set of regulations to understand and as the observer it is **not** your responsibility to interpret them. The vessel is completely responsible for knowing what they may or may not retain. If someone on the vessel asks you if they are allowed to retain something (i.e. a tasty-looking rockfish) do not try to interpret this rule; instead, direct them to the Factory Manager or Captain.



Remember! Interpreting regulations is not part of your observer duties.

SAMPLING & BIOLOGICAL DATA

Observer Priorities & Goals

1. Personal safety
2. Marine mammal (& Endangered Species) *sampling*
3. Collection of haul information and OTCs
4. Species composition sampling
5. Salmon snout collection
6. Otoliths (hake & rockfish)
7. Sexed lengths of hake and rockfish, in order of priority
8. Monitoring for marine mammals

Other tasks: fish collection, documentation of seabird interactions and sightings



Observer Catch Reporting

All vessels participating in the hake fishery have the ATLAS program. Total catch and bycatch numbers are crunched daily so your data is needed promptly. *Sending your data through ATLAS must be done daily!* Remember to enter non-fishing day positions on days in which no fish were retrieved or delivered. This includes every day from the first day you board the vessel until the day you disembark.

You should return with your paper Vessel and Observer Haul Forms, ATLAS deck sheets, salmon snout data sheets, platform scale test record, any marine mammal data forms, logbook, species ID forms, as well as your backup and archive ATLAS discs.

If your ATLAS is not working, please contact **Glenn Campbell** as soon as possible at **206-526-4240**. For all other problems and questions please contact the NWFSC (see Appendix D).

Marine Mammal Sampling & Monitoring

Sampling for marine mammals is your second priority, meaning that if a marine mammal is caught, you should drop whatever you are doing and collect the appropriate samples and information. *Monitoring* for marine mammals is further down on the priority list and should be done primarily during the time when you are not partial haul sampling. For example, if you are partial hauling 50% of the haul, then the other 50% of the processing time should be used for monitoring haul backs and dumping for marine mammals. In other words, monitoring for marine mammals should not negatively affect your sample size.

Official Total Catch Estimates (OTC)

Observers on vessels using a flow scale that is passing the daily test do not need to make any independent observer estimates. Use the flow scale weight as your OTC. Should the flow scale

break or the vessel fails to test it daily, then the observers should make an independent observer estimate for all tows.

Bin Volume Estimates

Since the vessels installed flow scales, many vessels have altered their CDQ certified bins. If you are using bin volumes for OTC and Observer Estimates, you should verify any markings in the bins. This means actually getting in the bin and checking to make sure the marks are what they should be. Diagram the bins in your logbook, and include all measurements. The prescribed density for hake in **bins** is **0.92 mt/m³**.

Codend Volume Estimates

If you must resort to codend measurements make actual measurements, using a measuring tape or marked stick. The prescribed density for hake in a **codend** is **0.97 mt/m³**.

Scale Testing

NOTE: Flow scale use is *not required* in the hake fishery. However, all vessels have been voluntarily testing and using them for the last 6 years.



Who performs the scale tests? Both the motion compensated platform scale (MCP or “observer scale”) and the flow scale must be tested every 24 hours. The MCP scale test is the observer’s responsibility. Test the scale using certified weights at least once a day at 10, 25, and 50 kg. Record the results in your logbook on the scale testing page, even if it fails. A 0.5% variance is allowed to consider the scale usable and accurate. The scale needs to pass this test in order for you to use it for your species composition sample, and also so that the flow scale test can be conducted. If the scale fails then re-test it or try calibrating the scale.

The flow scale needs to be tested daily to insure the accuracy of the data you are collecting. Testing the flow scale is the vessel’s responsibility, but an observer must be present for it to be valid. All vessels in the hake fishery have been voluntarily testing the flow scales (they are required by regulation to test it in Alaska). If for some reason the vessel decides not to test the flow scale then you must obtain OTCs from other means (codend, bin volume, or vessel estimate). During the last 6 years every vessel has complied with the testing and only one temporary break down has occurred where the observers had to measure codends for one day. If the flow scale breaks or the vessel does not test it daily let your in-season advisor know immediately.

The flow scale is used by the vessel to record total catch weight for each haul and to track the cumulative total catch weight for the vessel. Keep track of which haul is running across the scale. Record the display weight between each haul’s processing. This can be compared against the printout of each haul weight which will be used for OTC.

Vessel personnel are required to fill out a “Record of Daily Tests” form when fishing in Alaska. They do not have to do this in the hake fishery but they may do it anyway and ask you to sign it. Signing the form does not mean the scale passed the test. Rather, it means the test was conducted properly according to the Alaska regulations. It is the vessel’s responsibility to conduct the test in a manner that makes it possible for you to be present. You should work with the vessel so you can be present for the test at a time convenient to everyone. The crew will run 400+ kg of fish over the flow scale and the crew will then verify the weight of the same 400+ kg of fish using the observer scale. A 3% variance is allowed.

What happens if a flow scale fails the test? The vessel may continue to test the scale until it passes. If the flow scale does not pass the test you should document the situation, including: who did the test, how many times they tested it, the percent error it is failing by, why the scale is failing (if known), and any conversations you have regarding this issue. Contact your in-season advisor, but continue to sample; you may need to use bin volumes or drop down to a basket sample if you feel the flow scale is unreliable for a partial haul sample weight. Make an observer estimate (bin volume or codend) or use the vessel estimate for OTC until you hear from your in-season advisor.

How can you ensure accurate weights (i.e. OTCs)? Everything in the catch must pass over the flow scale to be weighed. Document all situations where everything is not weighed, such as large objects on deck or anything removed prior to the flow scale. Add these weights, or estimated weights, to the flow scale weight in order to calculate the correct OTC. Record the weight displayed on the digital readout between each haul’s processing. The flow scale display panel should be sealed. The scale’s computer cannot be tampered with unless someone breaks the seal. If you suspect the seal is broken, document this and let your in-season advisor know.

Clarification of X sample type for pre-sorted organisms

When a large organism is pre-sorted out on deck and never given the chance to fall in your sample, you record it as a sample type X in your species composition and add the weight to the OTC. If you are sampling for species composition and a large organism is removed from the bin or belt prior to the flow scale, include it in your sample as an estimated weight and add that weight to the OTC. If this occurs during a non-sample period, add the estimated weight to the OTC, but do not include it in the sample data.

Random Sample Table Use

You and your partner should set up opposite work shifts and sample every haul. In the event that one observer gets sick and is unable to sample contact your in-season advisor either by phone or e-mail and a decision can be made as to whether the random sample table should be employed. Generally, if the sickness is expected to last only a day or two then the well observer would just continue to sample during her/his normal shift. If the sickness might last longer than 2 days then the random sample table needs to be used so that the samples aren’t all coming from the same time period. In addition, the contractor should be notified of the illness.

Composition Sampling

The hake fishery is managed entirely on observer data, therefore, it is vital that the data be both randomly collected and of the highest quality. Implementing a random sample frame is usually simple since these vessels all have flow scales. Either estimate the size of the haul

yourself or ask the factory manager for her or his estimate. Divide the weight into 2 equal parts and randomly select which half to sample for species composition.

Steps in Designing a Random Sample Frame:

1. Define the population – *every fish in the haul*
2. Define the sampling frame – *spatial or temporal*
3. Define your sampling units – *metric tons or minutes*
4. Number all of the sampling units in your sampling frame
5. Randomly select units to sample – *use RNT, dice, etc.*

Partial and whole haul sampling are the preferred methods for collecting composition data and are possible on all hake vessels. Partial haul sampling is the norm in this fishery, but you may be able to whole haul depending on the size of the codend and the amount of bycatch.

Keep in mind that if you cannot see and collect all species for which you are whole or partial haul sampling, you must either reduce your sample size or work with the boat to run the fish in a thinner layer. If you find that you have to basket sample occasionally for species composition due to large amounts of bycatch, or time constraints, try to partial haul sample for the prohibited species and any species of concern (canary, widow, darkblotched). *Be creative when you are sampling.* If you have a haul that is thick with dogfish, try tallying for them and randomly collect 50 for an average weight. Also, make use of the 200 kg predominant species sub-sample if the haul has two predominant species. (See NPGOP manual pg. 4-7)

Bycatch quotas in the hake fishery are quite low for certain species (i.e. canary rockfish and Chinook salmon). Recently the vessels have been very concerned with bycatch and interested in working more closely with the observers to ensure that the largest and most accurate sample be taken. This might entail slowing the processing rate so that you are able to partial haul rather than basket sample. This will require a large amount of cooperation between the observer, the person controlling the belts and any sorters who might be standing at the belt. Taking multiple small partial haul samples might be feasible even if the bycatch amount is high, if the vessel is willing to work with you. You should do all you can to try and avoid basket samples but keep in mind when collecting a partial haul, you must be able to account for every piece of bycatch.

Prohibited Species

<u>Species</u>	<u>Prohibited</u>
salmonids (all species)	YES
Pacific halibut	YES
dungeness crab	YES
herring	NO
California halibut	NO

All salmonids, Pacific halibut, and Dungeness crab are prohibited species in the EEZ off Washington and Oregon (from 3 - 200 nautical miles offshore).

Salmon may be of particular concern to your vessel due the listing of "evolutionary significant units" (ESUs) of Chinook and coho salmon along the Washington/Oregon Coasts. This year the fishery for Kalamath River salmon has been severely cut back causing even more concern over salmon bycatch levels. The vessel might want haul-by-haul salmon numbers from you to identify and reduce incidental take. There is no Salmon Retention program in the hake fishery. Please see the "Salmon" section for more information.

California halibut is NOT a prohibited species. They are very similar to Pacific halibut, but are in the left-eyed Bothidea family, which means they can be either left or right-eyed (~50% left, ~50% right), and they have less than 77 dorsal soft-rays. Pacific halibut almost always have their eyes on the right side of the head, and will have greater than 80 dorsal soft-rays. It is unlikely that you will see a California halibut, however, you should double check your identification of any Pacific halibut to be sure.

Herring is NOT a prohibited species in the hake fishery, but when using the ATLAS program, you will still need to list herring (as well as all other Alaska prohibited species) in your species composition data.

"Species identified as prohibited must be returned to the sea as soon as practicable with a minimum of injury when caught and brought aboard, after allowing for sampling by an observer, if any. Exceptions may be made for the recovery of tagged fish".
(Excerpt from Amendment 4 to the Pacific Coast Groundfish Plan.)

Recording Prohibited Species

Because ATLAS was designed for the NPGOP you will have to enter king and tanner crabs (even though it is very unlikely you will see either of them) as prohibited species. Herring must also be entered as a prohibited species in ATLAS, even though on the WOC they are not prohibited. Record Dungeness crab as you would any bycatch species on your deck sheet. They are a prohibited species in WOC fisheries, but nothing special needs to be done in ATLAS.

Salmon

Be careful with salmon identification! Salmon are often more difficult to identify off the West Coast than in Alaska, and the usual characteristics for identification may be faint or absent. If you are uncertain of the identification, freeze that salmon and bring it back with you. (Yes, the whole fish!)

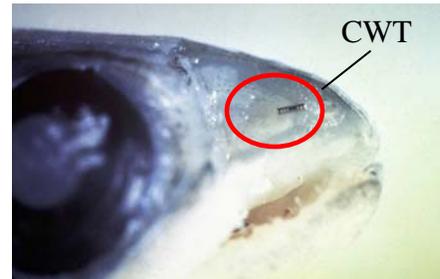
In lieu of collecting salmon scale samples this year you are being asked to collect 5 whole specimens of each species you see, per observer. This is required for each individual observer, just as scale samples are normally required. The reason for this is the NPGOP, the WCGOP and the Hake Program all need salmon specimens for their fish identification collections. Also, it will allow the debriefer to check the identification of the specimens. Although this sounds like it might be cumbersome, it is unlikely that each observer would have more than 10-15 specimens

apiece. These vessels have ample freezer space and most of them come into Seattle for offloads, so the logistics of moving the samples should not be difficult.

Salmon specimens for identification verification need to be collected from inside your sample. For this reason you should leave the snout intact and place a numbered tag with it and collect the usual data and enter that on your snout form. In the comments section on the snout form put “whole specimen collected”.

Some salmon are tagged with coded wire tags (CWTs).

These are tiny tags inserted into the snouts of juveniles. In the past when a CWT was inserted, the adipose fin was clipped to indicate the presence of a tag. In recent years hatcheries have started to clip the adipose fin on all fish they release. Electronic means must now be used to determine if a tag is present. Both Chinook and coho sometimes have double index tags (DITs) which means they may have CWTs, but the adipose fin has *not* been clipped as a visual indicator.



Collecting this data will help determine the relative percentages of salmon that are tagged, how old the fish is and identify where the fish originated.

Salmon Snout Collection



Purpose: To monitor for the presence of coded wire tags (CWTs) in salmon with clipped adipose fins, as well as those with adipose fins present. *This project applies to Chinook, coho, and steelhead only.* Steelhead are rarely seen in this fishery, however, if you do find one you should bring back the whole fish (in lieu of a scale sample) and then it can be checked for a CWT during debriefing.

How to collect a salmon snout: *collect the upper snout by cutting just behind the eye.* Do not collect the whole head. You will be issued small uniquely numbered tags printed on waterproof paper. The “A-SHOP” on the tag stands for At-Sea Hake Observer Program (which doesn’t need to be recorded on the form), the “06” indicates the year and the 4-digit numbers are unique. Use the issued tags in sequence and place the tag inside a Ziploc with the snout and freeze the snout.

NOTE: Record **all** salmon snout data on the ATLAS decksheet, including the presence/absence of the adipose fin, sex, weight, length and species. Be sure to indicate if a sub-sample was necessary. Then transfer this data to the salmon snout forms.

Overview of sampling strategies

In order to collect the most accurate and widely applicable data for salmon, snout collection strategies have been updated from previous years. On *all vessel types*, observers will collect salmon snouts from all Chinook and Coho salmon **INSIDE** the sample.

1. **Wand** - one vessel will be issued a metal detecting wand. **All salmon INSIDE** the sample should be checked for the presence of CWTs. All snouts with tags will be collected. In addition, record data for all salmon with clipped adipose fins inside the sample but do not collect the snouts.
2. **All Vessels (Non-Wand)** - collect snouts from all Chinook and Coho salmon inside sample.

Sampling details

1. WAND:

- **All salmon INSIDE** the sample should be checked for the presence of CWTs. All snouts with tags should be collected. In addition, record data for all salmon with clipped adipose fins inside the sample but do not collect the snouts.

.....
: **NOTE:** There is a mini-CD inside the wand case. It
: contains an 8-minute video showing how to use the
: wand. You should watch this before actually using it as
: it is quite informative. The wand case must be stored in
: a clean, dry place.
:

- The wand must be passed along the exterior of the upper snout and the tip of the wand placed inside the salmon's mouth to detect more deeply embedded tags, especially on larger fish.
- Beware of nearby metal that can set the wand off. Your wrist watch, belt buckle or just metal in the factory may cause false positives.

2. ALL VESSELS (NON-WAND):

- Collect snouts from **all** Chinook and coho within the sample.
- If you are overwhelmed with salmon (>25 fish/haul), then a random sub-sample may be collected (i.e. every *n*th fish). Be sure to record that data as sub-sampled on your data sheet so it will be known that not all snouts were collected from that haul.

Observer Name & Cruise #: Douglas Adams #14242
 Vessel name: Hitchhiker

Page 3 of 7

Subsampled? Y/N // adipose fin present = Y/N

Species codes: 1 = chinook, 2 = coho, 3 = steelhead, 0 = unknown // Method: V=Visual, E=Electronic (wand)

Date DD/MM/YY	Snout_ID	Haul	Lat (N)	Long (W) (x100)	Sp. code	L (cm)	Wt (kg)	Sex	Subsampled?	adipose fin	Mthd.	Comments (fin markings, deformities, etc)
5/13/06	06-3717	13	4535	2737	1	67	3.95	F	N	Y	V	EXAMPLE
5/17/06	06-3718	20	4541	2729	1	59	2.97	M	N	N	V	EXAMPLE
5/18/06	06-3719	24	4558	2727	1	49	1.68	M	N	N	V	
5/18/06	06-3720	24	4558	2727	1	55	2.31	F	N	N	V	
5/18/06	06-3721	25	4554	2731	1	63	3.41	F	N	Y	V	
5/19/06	06-3722	29	4549	2739	1	58	2.78	M	N	Y	V	
5/19/06	06-3723	↓	↓	↓	1	59	2.85	M	↓	Y	V	
5/19/06	06-3724	↓	↓	↓	1	53	2.55	F	↓	Y	V	
5/19/06	06-3725	↓	↓	↓	1	67	3.98	M	↓	N	V	
5/19/06	06-3726	29	4549	2739	1	55	2.97	F	N	Y	V	
5/19/06	06-3727	30	4547	2743	1	63	3.27	F	N	Y	V	
5/19/06	06-3728	30	4547	2743	1	58	2.98	F	N	Y	V	
5/19/06	06-3729	31	4551	2758	1	55	2.81	M	N	N	V	
5/19/06	06-3730	31	4551	2758	1	64	3.47	F	N	Y	V	
5/19/06	06-3731	31	4551	2758	1	56	2.76	F	N	Y	V	
5/21/06	06-3732	47	4541	2737	1	68	4.02	F	N	Y	V	
5/21/06	06-3733	49	4547	2744	1	51	2.13	M	N	Y	V	
5/23/06	06-3734	63	4552	2753	1	71	4.88	F	Yes	N	V	overwhelmed w/
5/23/06	06-3735	63	4552	2753	1	64	3.37	M	Yes	Y	V	salmon & took first
5/23/06	06-3736	63	4552	2753	1	59	2.89	F	Yes	Y	-V	30 - then every 5th

NMFS, NWFS, At-Sea Hake 2006

CHINOOK form

Collect snouts from ALL chinook/coho INSIDE sample

Figure 3 Snout Form

Completing the Salmon Snout Form

All raw data should be recorded on your deck sheets and transferred to the salmon snout form.

Heading - Record lead observer's name and cruise number, vessel name and page number.

Date - Month and day of haul retrieval (year is filled in).

Snout_ID - Unique 4 digit number printed on A-SHOP tags. "06" designates the year and is filled in.

Snout Taken? (Wand boat only)

Y - snout collected from tag-detected salmon.

N - data recorded for non-tag-detected salmon with NO adipose.

Haul - Haul number snout is collected from

Lat/Long - Retrieval latitude and longitude

Species Code - 1=Chinook, 2=Coho, 3=Steelhead, 0=unknown *Chinook forms -1 is pre-filled*

Length - cm

Weight - kg

Sex - F(emale) / M(ale) / U(nknown)

Sub-sampled?

N - all salmon snouts in species composition sample were collected (or wanded)

Y* - overwhelmed by salmon inside sample (>30)

*comments section - reason for sub-sample/how did you select sub-sampled salmon?

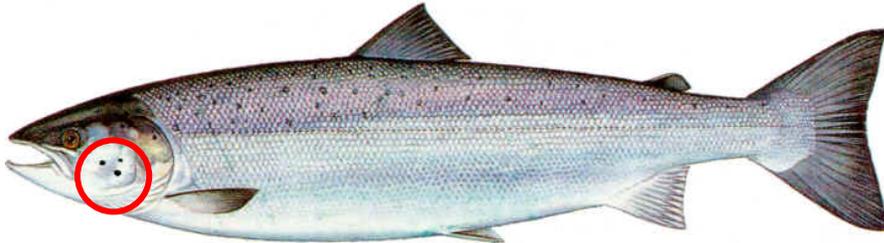
Adipose fin - Y - adipose fin present N - NO adipose fin

Method - Method of tag detection - pre-filled as Visual or Electronic (wand)

Atlantic Salmon Watch Program (ASWP)

What is the Atlantic Salmon Watch Program? The Atlantic Salmon Watch Program (ASWP) is a cooperative research program operated by Fisheries and Oceans Canada with funding from the BC Ministry of Agriculture, Food and Fisheries. The purpose of the program is to study the abundance, distribution and biology of Atlantic salmon in British Columbia and its adjacent waters. The ASWP monitors commercial and sport catches and observations of Atlantic salmon throughout British Columbia, Alaska and Washington in co-operation with the Alaska Department of Fish and Game and the Washington Department of Fish and Wildlife. The program relies on fishers, fish processors, government field staff and hatchery workers to report observations of Atlantic salmon.

How do you distinguish Atlantic salmon from Pacific salmon? The key distinguishing feature of Atlantic salmon is black spots on the gill cover.



What do you do if you find an Atlantic salmon? Keep the whole fish!! (Even if it was not in your sample.) If you do get one in your sample record it in your data like normal. A species code will have to be created, so let your in-season advisor know and s/he will get back to you with a new species code. Report the capture by calling the ASWP toll-free reporting line at 1-800-811-6010 (this can be done during debriefing). You will be asked where and when you caught the fish and if you wish to donate the fish for research purposes. Donation is not mandatory but it does provide valuable samples for our scientific study. For donation, the whole fish, including entrails, should be frozen or kept on ice. ASWP staff will arrange for transport of the fish carcass.

The A.S.W.P. publishes an annual report of its findings in the Manuscript Report Series of the Department of Fisheries and Oceans. The program strives to provide an accurate and unbiased accounting of Atlantic salmon in British Columbia and its adjacent waters.

Species ID Forms

Starting in 2005 a record of each observer's species ID forms are now stored in the database. A list of the species you have done species ID forms from 2005 and on will be provided during training. For any new species that you encounter during hake you will have to fill out a form. These forms must be filled out with sufficient detail to clearly convey that the species was identified correctly.

Length & Otolith Sampling

All lengths and otoliths should be collected randomly according to NPGOP manual instructions (Chapter 9). If hake is not the predominant species you should still collect hake lengths and otoliths. If you are having difficulty coming up with a random method for collecting fish to

measure, contact your in-season advisor for assistance. If you are not sure if your method is truly random, describe it to your advisor and ask for feedback.

Hake Sexed Lengths

Collect ~20/sampled haul

Hake Otoliths

Collect 5 pairs from length sample, every 5th haul. Hake otoliths are more fragile than most, so use caution while cutting.



Rockfish sexed length and otolith (in order of sampling priority)

1. canary
2. yelloweye
3. bocaccio
4. POP
5. darkblotched
6. roughey / shorttraker
7. widow / yellowtail (sexed lengths ONLY, no otoliths)

Remember all rockfish lengths must be randomly collected from inside of the species composition sample.

Rockfish Sexed Lengths

Because you can't predict when one of these rockfish species will show up in the haul, rockfish lengths and otoliths should be collected every time they are seen in the species composition sample (i.e. every haul if they are present, as time allows). The goal is 10 total otoliths and 40 total sexed lengths per haul. Please take a minimum of 5 otoliths and 20 lengths from one species and do up to 2 different rockfish species per haul.

Like any length and age data these rockfish lengths *must* be collected randomly. For example, if you come down into the factory and the sorter has collected a basket of canaries, you cannot be sure that s/he wasn't just collecting only the largest canaries. To ensure true randomness these length samples should come from your species composition sample. In addition, ATLAS will not allow you to enter lengths for a species which is not present in your species composition for that haul. For example, you may want to measure all rockfish in a randomly chosen basket from your species composition sample. These lengths must be sexed. They are of no use for stock assessment without sex data. If you are unable to determine the sex of a specific individual, record it as "unknown".

Rockfish can be more difficult to sex than hake. The gonads are found up near the backbone, much like salmon. Please review Chapter 9 in the NPGOP manual for help determining sex in rockfish.

1. Gonads are found along backbone, towards the anus.
2. Insert blade into anus and cut toward head. Alternately, you may cut open the side of the abdomen, at the top of the visceral cavity.
3. Remove viscera to expose gonads.

4. Female gonads will appear as white, pink, yellow or orange elongated tubes. As they mature they become oval-shaped and will have granular appearance. Female gonads are oval in cross-section. Males will be cream to pink in color. When mature they are triangular shape in cross-section; immature testes are still somewhat triangular and will have defined edges at the bottom (Figure 3).



Gonad placement along backbone

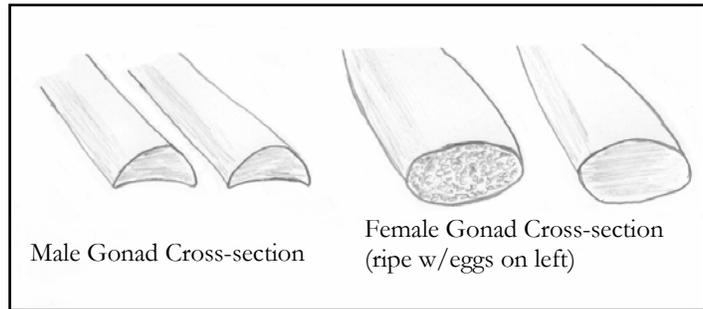


Figure 3 Rockfish gonad appearance

Fish Collection

The observer program can always use fresh fish specimens of just about anything. Plus, if you see a rare or uncommon fish you should always bring it back, or if you see a fish that is out of its listed geographic range. There have been two *dusky rockfish* found off Oregon in places where they have not historically ranged. Please bring them back if you see one. If you see an Atlantic salmon bring the entire fish back. High quality pictures of fish or invertebrates are always appreciated, especially of rare or uncommon species.

Mid-season Data Checks and Debriefing

Every observer in the at-sea hake fishery will be required to go through a mid-season data check. This will be similar to a mid-cruise, but will likely be conducted via text messages in ATLAS, over e-mail or by phone. After your first week on board you will be sent a list of questions asking about sampling methods to ensure that the protocols are clear and easy to follow. You are expected to answer them completely and promptly. If you or the observer program feels the interview should be done verbally, a time will be set up so that it can be conducted over the phone.

All hake vessels will have an in-season advisor. In addition to the manual, the advisor is a good source for answering sampling questions and responding to any problems that may arise. S/he will also let you know about any data errors that they find which can be fixed at sea, thereby speeding up your debriefing process.

You will need to debrief from your hake cruise as soon as you return, prior to being deployed again for the NPGOP. Once you are debriefed, you may attend a standard briefing to prepare for your next Alaska cruise. Remember when you are filling out your survey that the hake fishery is not considered a CDQ fishery, so answer no to the CDQ question.

Gear check-in protocol

When you return from your hake cruise you should make an appointment with Dan Decker (526-4198) or Karen Teig (526-4191) to turn in your gear. Follow the protocols posted in the wet lab and be sure your gear is clean. Return gear issued by the hake program (Rockfish guide, Miller & Lea book, species key, salmon snout supplies, etc.) to your debriefer.

Photo credits

Thanks to observers **John Bieraugel, Keri Barber, Cassandra Donovan,** and **Roy Morse** for the photographs.

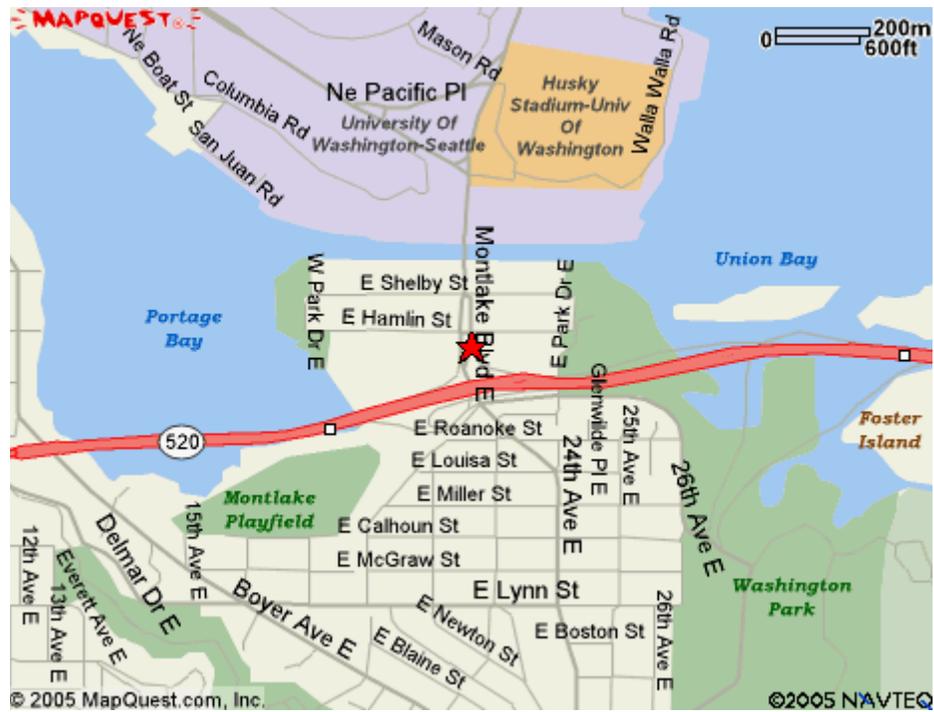
Appendices Table of Contents

Seattle Maps showing NWFSC and AFSC.....	App. A
Abbreviations.....	App. B
Observer Program Contact Information.....	App. C
Contractor Information.....	App. D
Useful Websites.....	App. E

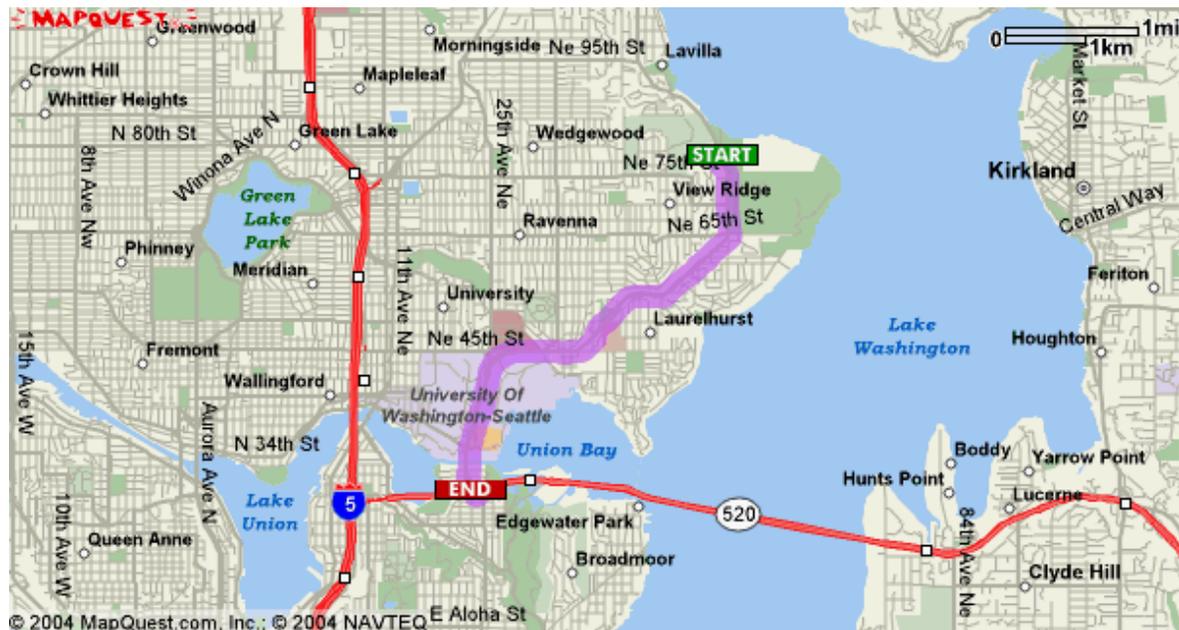
Appendix A. Seattle Maps Showing NWFSC and AFSC

Map 1 NWFSC (red star)

Northwest Fisheries Science Center - 2725 Montlake Blvd. E, Seattle, WA 98112



Map 2 showing route from the AFSC at Sand Point, to the NWFSC at Montlake



Appendix B. Abbreviations

ABC = acceptable biological catch

AFSC = Alaska Fisheries Science Center

A-SHOP = At-Sea Hake Observer Program

CDF&G = California Department of Fish & Game

CPUE = catch per unit effort

EEZ = exclusive economic zone

EFH = essential fish habitat

EIS - environmental impact statement

EPIRB - Emergency Position Indicating Radio Beacon

ESU - evolutionary significant units

FMP - fisheries management plan

LOA - Length overall

MARPOL - Marine Pollution

MPA - marine protected areas

MSFCMA - Magnuson-Stevens Fishery Conservation and Management Act

NPGOP – North Pacific Groundfish Observer Program

MSY - maximum sustainable yield

NWFSC - Northwest Fisheries Science Center

ODF&W - Oregon Department of Fish & Wildlife

OY - optimum yield

PFMC - Pacific fishery management council

SFA - Sustainable Fisheries Act

TAC - total allowable catch

WCGOP – West Coast Groundfish Observer Program

WDFW - Washington Department of Fish & Wildlife

WOC - Washington – Oregon – California coasts

Appendix C. Observer Program Contact Information

At-Sea Hake Observer Program - NWFSC - Seattle, Washington

Primary contact:

Vanessa Tuttle 206-860-3479
Vanessa.Tuttle@noaa.gov

Address: At-Sea Hake Observer Program
NOAA Fisheries, FRAM
Attn: Vanessa Tuttle
2725 Montlake Blvd. E.
Seattle, WA 98112

NOTE: Please leave a message if I don't answer, I could be away from my desk for just a few minutes. Also, listen to what my message says. When I am out at sea my message will say so, and then Cassandra Donovan should be contacted for debriefing, etc.

Alternate contacts:

Cassandra Donovan 206-526-6724
Cassandra.Donovan@noaa.gov

Jonathan Cusick 206-465-7555
Jonathan.Cusick@noaa.gov

Janell Majewski 206-860-3293
Janell.Majewski@noaa.gov

ATLAS questions or problems:

Glenn Campbell (AFSC): 206-526-4240
Glenn.Campbell@noaa.gov

Northwest Region – questions about regulations

Becky Renko (NWR): 206-526-6110
Becky.Renko@noaa.gov
Fax: 206-526-6736
<http://www.nwr.noaa.gov>

Appendix D. Contractor Information

Alaskan Observers, Inc. (AOI)

130 Nickerson, Suite 206
Seattle, WA 98109
Phone: (206) 283-7310
Fax: (206) 283-6519
E-mail: aoistaff@alaskanobservers.com
www.alaskanobservers.com

NWO, Inc.

654 5th Avenue South #203
Edmonds, WA 98020
Phone: (425) 673-6445
Fax: (425) 673-5995
E-mail: Alaska@nwoinc.com

Saltwater, Inc. (SWI)

733 N. Street
Anchorage, AK 99501
Phone: (907) 276-3241
Fax: (907) 258-5999
E-mail: Mary@saltwaterinc.com
www.saltwaterinc.com

TechSea International, Inc.

2360 W. Commodore Way
Seattle, WA 98199
Phone: (206) 285-1408
Fax: (206) 285-1535
E-mail: dave@techsea.com
www.TechSea.com

Appendix E. Useful Websites

Northwest Fisheries Science Center

<http://www.nwfsc.noaa.gov/>

Fishery Resource Analysis & Monitoring Division

<http://www.nwfsc.noaa.gov/research/divisions/fram/index.cfm>

At-Sea Hake Observer Program

<http://www.nwfsc.noaa.gov/research/divisions/fram/Observer/atseahake.cfm>

Northwest Regional Office

<http://www.nwr.noaa.gov/>

Groundfish Management

<http://www.nwr.noaa.gov/1sustfsh/gdfsh01.htm>

Whiting Fishery Management

http://www.nwr.noaa.gov/1sustfsh/groundfish/whiting_mgmt.htm